

ABSTRACT OF THE DISCLOSURE

A signal discriminator is provided which leverages variation of permittivity of Mn-Zn-based ferrite. The signal discriminator comprises a soft magnetic material which has a capacitive reactance C , and which has its complex relative permittivity varying with frequency such that the real part ϵ_1 of the complex relative permittivity is large in a low frequency domain and small in a high frequency domain. In the reactance component X_2 , the capacitive reactance C is not negligible with respect to the inductive reactance L in a low frequency domain, in consequence of which the value of the reactance component X_2 as a parallel circuit of the capacitive reactance C and the inductive reactance L is caused to decrease, and the influence of the capacitive reactance C is decreased in a high frequency domain. Consequently, the reactance component X_2 decreases more than the reactance component X_1 of a conventional soft magnetic material, and the X-R cross-point frequency moves to a frequency lower than a conventional X-R cross-point frequency XR_1 , whereby noises in a frequency band where noise components exist are converted into thermal energy thus reducing the waveform distortion originating from high frequency noises.